Massachusetts Department Of Correction **POLICY**	Effective Date 6/27/2022 Annual Review Date 07/10/2023	Responsible Division Deputy Commissioner, Administration
Policy Name 103 DOC 740 MAINTENANCE AND SANITATION STANDARDS	M.G.L. Reference: M.G.L. Chapter 124 § 1 (c) and (q); Executive Order 350; 780 CMR 110; 248 CMR 3.05; 527 CMR 12.00 DOC Policy Reference: 103 DOC 112; 103 DOC 750; 103 DOC 760 ACA/PREA Standards: 5-ACI-1A-04; 5-ACI-2C-09; 5-ACI-3B-08; 5-ACI-3B-09; 5-ACI-5D-02; 5-ACI-7C-04; 4-ACRS-1A-01;4-ACRS-1A-06; 2-CI-6A-7; 1-CTA-2A-03; 2-CO-1A-06-1; 2-CO-4D-01	
Attachments Yes ☒ No ☐ Inmate Library Yes ☒ No ☐	Applicability: Staff/Inmates	
Public Access Yes ☒ No ☐	Location: Department Central Policy File Superintendent's Office	

PURPOSE:
The purpose of 103 DOC 740 is to establish Department of Correction ("Department") policy concerning the procedures to ensure the safety and well-being of the inmates and staff in correctional institutions.

RESPONSIBLE STAFF FOR IMPLEMENTATION AND MONITORING OF POLICY:
Deputy Commissioner, Administration
Superintendents
Director of Resource Management

CANCELLATION:
103 DOC 740 cancels all previous Department policy statements, bulletins, directives, orders, notices, rules, or regulations regarding the safety and well-being of the inmates and staff in correctional institutions which are inconsistent with this policy.

SEVERABILITY CLAUSE:
If any part of 103 DOC 740 is, for any reason, held to be in excess of the authority of the Commissioner, such decision shall not affect any other part of this policy.

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ATTACHMENTS

740.01 DEFINITIONS

CMR: Code of Massachusetts Regulations.

Division of Capital Asset Management and Maintenance (DCAMM): The State agency responsible for capital facility projects.

Division of Resource Management: The Division which is responsible for the planning and management of all feasibility studies, design development, infrastructure and emergency repairs, and construction for the Department.

DEP: Department of Environmental Protection.

DPH: Department of Public Health.

740.02 DEPARTMENT OF PUBLIC HEALTH REGULATIONS

Each institution shall comply with applicable Massachusetts Department of Public Health regulations as required by statute, regarding maintenance in the Department facilities and institutions.

A copy of the written DPH inspection report shall be kept on file at each institution as assurance of continuing compliance with these regulations.

740.03 PREVENTIVE MAINTENANCE GUIDELINE

Each institution shall adopt the Capital Asset Maintenance Information System ("CAMIS Program") as the comprehensive preventive maintenance plan for the physical plant. This plan is designed to prolong the useful life of all institution property and equipment by performing regular inspections of the physical plant and providing for the preventive maintenance work scheduled for daily, weekly, monthly, or annual inspections. In addition, the plan shall provide for regular maintenance and emergency repairs or replacement of equipment.

The preventive maintenance plan shall address, but not be limited to the following:

1. Structural Maintenance

   A schedule of inspection of structural elements of the institution such as, but not limited to: roof slabs, floor slabs, columns, stairs, bearing walls, foundations, and others to monitor for deleterious changes in their make up. Each institution shall develop a schedule to accomplish these inspections. Any noted concerns regarding the structural elements shall be immediately reported to the Division of Resource Management.

2. Non-Structural Maintenance

Non-structural elements such as, but not limited to: non-bearing walls, roof membranes and coverings, windows, doors, skylights, shall be kept rodent-proof, watertight, and in good repair. All interior elements shall be free from defects, which constitute an accident hazard or provide insect or rodent harborage or render the area difficult to keep clean. The institution shall develop a schedule by area for continued upkeep of the above areas.

3. Plumbing Maintenance

A. Each institution shall have a water supply which is adequate, for necessary uses, of a safe and sanitary quality and from a source approved by the DEP.

B. Each inmate and each employee shall have access to a supply of hot water sufficient for personal hygiene of temperature as set forth by the DPH, and in quantity and pressure sufficient for use of wash basin or shower.

C. Each institution shall have an adequate sanitary drainage and sewerage system. All plumbing shall be maintained in good repair and shall be free from leaks.

D. The administrator of each institution shall cause regular tests and inspections of its water quality and sewerage system effluent to be conducted and recorded including, but not limited to, test for bacteria as required by DEP. Institutions with municipal sewer or centralized wastewater facilities administered by other correctional institutions are exempt from effluent testing. Tests shall be in accordance with EPA and/or DEP and/or Title V standards for wastewater disposal systems.

4. Grounds Maintenance

The outside grounds of each institution shall be maintained in a neat and orderly condition, in good repair, and fit for the uses intended.

5. Other Equipment and Systems

The preventive maintenance plan shall include periodic inspections, maintenance, and repair of other systems and equipment, including but not limited to: treatment plants, heating distribution systems, emergency power generators, electric motors and controls, electric transformers, air conditioning, ventilation, refrigeration equipment, electric distribution systems, and kitchen equipment.

6. Scheduled Maintenance

A. Each institution shall utilize the CAMIS Program to manage its scheduled maintenance plan. This includes generating and tracking work orders.

B. Each institution shall coordinate this effort with the Division of Resource Management which shall act as liaison with Division of Capital Asset Management and Maintenance ("DCAMM").

C. The system shall be computerized in nature, and each institution shall devote appropriate resources to accomplish this.

7. Building Plan File

Each institution shall maintain a building plan file where documents representing the facility construction shall be kept.

740.04 INSTITUTION HOUSEKEEPING GUIDELINES

Housing guidelines shall be in accordance with 103 DOC 112, *Institution Assessment/Inspection*, 103 DOC 750, *Hygiene Standards*, and 103 DOC 760, *Food Service Policy*.

740.05 EXECUTIVE ORDER 350; CLEAN STATE INITIATIVE

In keeping with Executive Order 350, commonly known as the Clean State Initiative, each institution shall work diligently and expeditiously to ensure to the greatest extent possible, that they fully comply with, and implement in its operations, the environmental statutes and regulations of the Commonwealth. The institution shall ensure that the operations and practices include preventive environmental measures, including the use of environmentally up-to-date equipment, materials and processes, and other appropriate preventive and environmentally beneficial activities whenever possible. (e.g., reduction of solid wastes, recycling special wastes, reduction of products considered hazardous, "green" procurement.)

740.06 CONSTRUCTION/MAINTENANCE PERMITS

Each institution shall secure applicable permits from the authorities having jurisdiction for construction and maintenance activities as required for compliance with Federal, State and Local regulations.

As required by 780 CMR 110, Massachusetts State Building Code (MSBC),– Application for Permit, "It shall be unlawful to construct, reconstruct, alter, repair,

remove or demolish a building or structure; or to change the use or occupancy of a building or structure; or to install or alter any equipment for which provision is made or the installation of which is regulated by 780 CMR without first filing a written application with the building official and obtaining the required permit therefore."

1. General Building Construction, Renovation, Maintenance and Demolition:

   Building permit applications shall be filed with the State Building Inspector, Division of Professional Licensure (DPL). All building permit applications requests shall be submitted first to the Director of Resource Management, Department Central Headquarters, for review and preparation before filing with the DPL. State building permits are issued under the license of the Director of Resource Management or their assigned House Doctor.

   A licensed construction supervisor is required to supervise persons engaged in construction, reconstruction, alteration, repair, removal or demolition involving any activity regulated by any provision of MSBC. A licensed construction supervisor shall be licensed according to 780 CMR 110.R5.

2. Plumbing:

   As required by the Massachusetts Plumbing Code 248 CMR 3.05(1)(b)(1)(a)-(e), plumbing shall not be installed, altered, removed, replaced or repaired until a permit has been issued. Plumbing permit applications shall be filed with the State Plumbing Inspector. Permits to perform plumbing work shall be issued to licensed plumbers only.

3. Electrical:

   All installation, repair and maintenance of wiring and electrical fixtures used for light, heat and power purposes in buildings and structures shall be in conformance with the Massachusetts Electrical Code 527 CMR 12.00. Each institution shall apply to the local wiring inspector for a yearly permit to perform routine electrical maintenance. For special projects, above and beyond the scope of routine maintenance, a project specific wiring permit shall be secured. Permits to perform electrical work shall be issued to licensed electricians only.

740.07 LEAD MANAGEMENT PROGRAM

All construction activities, including but not limited to construction, demolition, modification, alteration, renovation, removal, painting, repair and all maintenance work whereby lead containing material could be disturbed shall be performed in

conformance with the Lead Management Program for Lead-Containing Paints as described in "Attachment #1".

The principal objective of the Lead Management Program is to minimize the exposure of employees, inmates and contractors to lead originating from construction and maintenance activities performed at the Department's institutions. Workers who perform activities that impact lead-containing paints and materials shall do so with the utmost concern for health, safety and the environment.

740.08 ASBESTOS OPERATIONS AND MAINTENANCE PROGRAM

The Department shall implement a program that includes removal, repair, or in-place management of installed Asbestos-Containing Material (ACM) in accordance with all applicable Federal and State regulations.

To this extent, the Division of Resource Management has developed a site-specific Asbestos Operations and Maintenance (O&M) program for each institution where ACM's are present. Each institution shall implement its O&M in accordance with Department policies and applicable Federal and State regulations. The Asbestos O&M Program is designed to:

- Monitor the condition of ACM.
- Prevent future release by minimizing and controlling ACM disturbance or damage.
- Control maintenance, renovation, construction and demolition activities relative to ACM disturbance.
- Alert Institution staff to the location of ACM.
- Ensure periodic re-inspection wherever ACM is located.

Work at Department institutions by Department employees, inmates and outside contractors shall be regulated and supervised in accordance with the site-specific O&M programs. All work activities shall be conducted in such ways as not to alter ACM conditions and not to increase the potential for impact upon air quality. Department employees and inmates shall not conduct any activities involving disturbance, repair or clean-up of ACM.

Only a qualified, licensed Asbestos Abatement Contractor shall be permitted to clean up, handle or remove ACM. Each institution shall ensure that outside contractors working at the facility are notified of the locations of ACM in proximity to their work area and that the proper precautions are to be taken. Outside contractors shall not begin work proximate to ACM until they have completed and signed the Notification Form per the O&M.

Attachment #1

MASSACHUSETTS DEPARTMENT OF CORRECTION
LEAD MANAGEMENT PROGRAM

For

LEAD-CONTAINING PAINTS
Project Number DRM 2001-40

Prepared For

Commonwealth of Massachusetts
Massachusetts Department of Correction
Division of Resource Management

Prepared By

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January 24, 2002

ATC Project No. 6003490.0028

CONTENTS

1.0 POLICY AND OBJECTIVES

It is the policy of the Department of Correction (DOC) that employees, inmates, and contractors who perform activities that involve lead-containing paint do so with the utmost concern for health, safety, and the environment. To that end, the Department of Correction issues this Lead Management Program and requires that the policies and procedures described herein be followed as written. A Competent Person as defined herein will supervise all work impacting lead-containing paint.

The principal objective of the Lead Management Program is to minimize the exposure of employees, inmates, and contractors to lead originating from renovation or demolition/construction activities performed at Department of Correction facilities. For purposes of the Lead Management Program, lead-containing paint is defined as a surface coating material containing detectable lead when measured by currently acceptable methods.

Contractors conducting work in DOC facilities shall determine if planned work will impact lead paint. When applicable, contractors shall develop and implement a written Lead Compliance Program in accordance with the requirements of the Occupational Safety & Health Administration's (OSHA) Lead in Construction Rule, 29 CFR 1926.62.

DOC employees and inmates shall not conduct work activities that impact lead in a manner that will result in worker exposure to lead in excess of the Action Level as defined herein.

The Department of Correction will review the Lead Management Program at least annually to ensure that policies and procedures are adequate and effectively implemented.

2.0 DEFINITIONS

Action level means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 µg/m^3) calculated as an 8-hour time-weighted average (TWA).

Competent person means one who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.

Lead-Containing Paint (LCP) means that a detectable amount of lead is present in the material. The OSHA standard does not specify a minimum amount or concentration of lead that triggers a determination that lead is present and the potential for occupational exposure exists. However, if the employer has appropriately tested all potential sources of lead (e.g., tested all layers of paints and coatings that may be disturbed) utilizing a valid detection method for the presence of lead and found no detectable levels of lead, the standard does not apply

Permissible exposure limit. The employer shall ensure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 µg/ m^3) averaged over an 8-hour period. If an employee is exposed to lead for more than 8 hours in any work day the employee's allowable exposure, as a time weighted average (TWA) for that day, shall be reduced according to the following formula:

Allowable employee exposure (in µg/ m^3) = 400 divided by hours worked in the day.

3.0 APPLICABILITY OF 29 CFR § 1926.62

Although federal OSHA regulations are not directly applicable to workers employed by state or municipal agencies, it is the policy of the DOC to conduct its activities with utmost concern for health, safety, and the environment. Contractors conducting work at DOC facilities are directly subject to OSHA regulations. The OSHA Lead in Construction Standard regulates workers in construction, demolition, and maintenance who may be occupationally exposed to lead-containing products. Lead-related construction work involves any construction, repair, painting, demolition, renovation, removal or encapsulation, alteration, installation of lead products, emergency cleanup, transportation, disposal, storage, containment, and maintenance work whereby the lead-containing material could be disturbed resulting in lead exposure.

Construction work covered by 29 CFR 1926.62 does not include routine cleaning and repainting (e.g., minor surface preparation and repainting at scheduled intervals) where there is insignificant damage, wear or corrosion of existing lead- containing paint and coatings or substrates

The standard requires all employers to provide an exposure assessment of the possible exposure to lead hazards. One component of the mandatory exposure assessment involves sampling the air in the worker's breathing zone to determine lead exposure. Action Levels and Permissible Exposure Limits (AL and PEL) are established in the OSHA standard for comparison. All employers who may expose workers above the PEL of 50 micrograms per cubic meter of air ($\mu g/m^3$) averaged over an eight-hour period must develop a written compliance program prior to the start of each job. The standard addresses the circumstances under which employees must wear personal protective equipment. Employers must make available medical exams for workers as well as testing for blood lead levels.

Negative Exposure Assessments: If exposure assessments prove exposure to lead is below the action level, an employer may utilize that data for historical purpose for up to six months for the identical work activity under the same conditions. If conditions such as the work performed, the components affected, or the length of exposure during the work shift were to change, the historical data may not be used in lieu of conducting an exposure assessment.

Regarding tasks involving lead-containing materials, the employer must perform an employee exposure assessment and document that the employee performing the task is not exposed above the AL of 30 $\mu g/m^3$. Until an exposure assessment is completed, the employer shall treat the employee as if the employee were exposed above the PEL (50 $\mu g/m^3$) and implement interim control measures for the following tasks as outlined in 29 CFR § 1926.62:

Task	Anticipated Exposure	Interim Control Measure
Wet Scraping, routine maintenance, single activities	<30 ug/m^3 < AL & PEL	Respiratory protection not required. Wash stations, lead hazard awareness training, use of wet cleaning and HEPA methods required. Negative exposure assessments may be required if task is repetitive.
Manual demolition, scraping, sanding, heat gun use, use of HEPA equipment, spray painting with lead paint (NOTE: Manual sanding and manual scraping refers to **dry** sanding and **dry** scraping.)	50-500 µg/m^3 10X PEL	Half-mask, air-purifying respirator. Coveralls or similar full-body work clothing. Gloves, hats, and shoes or disposable shoe coverlets. Face shields, vented goggles or other appropriate protective equipment. Hand washing facilities. Change areas. Biological monitoring, Respiratory protection and lead hazard awareness training.

Task	Anticipated Exposure	Interim Control Measure
Using lead containing mortar, lead burning, rivet busting, power tool cleaning without dust collection systems, cleanup activities where dry expendable abrasives and abrasive blasting enclosure movement and removal	500-2500 µg/m^3 100X to 250X PEL	Full-mask, powered air-purifyin respirator (PAPR). Coveralls or similar full-body work clothing. Gloves, hats, and shoes or disposable shoe coverlets. Face shields, vented goggles or other appropriate protective equipmen Hand washing facilities. Change areas. Biological monitoring. Respiratory protection and lead hazard awareness training.
Abrasive blasting, welding, cutting and torch burning	>2500 µg/m^3 250X PEL	Supplied air pressure demand respirator. Coveralls or similar full-body work clothing. Gloves, hats, and shoes or disposable shoe coverlets. Face shields, vented goggles or other appropriate protective equipment. Hand washing facilities. Change areas. Biological monitoring, Respiratory protection and lead hazard awareness training.

Areas that have not been tested for lead paint must be assumed to contain lead unless proven otherwise through additional testing. Prior to the performance of any maintenance, demolition, or renovation activities that may disturb painted surfaces, sampling is recommended to provide a solid basis for decisions regarding the management of possible exposure to lead-containing paint.

4.0 RESPONSIBILITIES

4.1 Facility Lead Management Program Manager: The facility Director of Engineering or his designee shall serve as Lead Management Program Manager. The Lead Management Program Manager has the overall responsibility for administration and implementation of the Program and serves as the coordinator of all activities related to LCP. The Program Manager is also responsible for all facility specific record keeping and ensuring that employees conducting tasks under this Program receive the required training and medical surveillance as applicable. Additionally, the Program Manager:

- Acts as the "Competent Person" as defined herein for work activities conducted by facility employees and inmates.

- Assures that each contractor conducting work at the facility is notified of the presence of lead-containing paints and, if applicable to the contractor's work, has developed and implemented a site specific lead-compliance program in accordance with 29 CFR 1926.62.

- Conducts inspections of job sites impacting LCP and the control measures, materials, and equipment utilized.

- Reviews the status of Lead Management Program annually. Suggested revisions to the Program shall be submitted to Division of Resource Management for review and implementation as appropriate.

4.2 Division of Resource Management (DRM): The DRM is responsible for providing support and consulting services as appropriate to implement the Lead Management Program. Responsibilities of the DRM may include but not limited to:

- Assist in arranging for inspections to determine the presence of lead in paints.
- Assist in arranging for abatement of lead paints where the Facility Lead Management Program Manager has determined it is appropriate.
- Arranging for personal exposure monitoring when required herein.
- Reviewing the status of the Lead Management Program annually (in coordination with the Facility Lead Management Program Manager). The DRM shall revise the Lead Management Program as appropriate.

4.3 Maintenance/Custodial Staff: Staff shall be trained in the hazards and procedures required for work impacting LCP. Responsible for notifying the Facility Lead Management Program Manager if LCP may be disturbed or damaged during maintenance or construction activities.

4.4.1 Contractors: Ensures that its workers are aware of the presence of LCP and it has developed and implemented a site specific lead compliance program in accordance with the requirements of 29 CFR 1926.62.

5.0 METHODS OF COMPLIANCE

5.1 Purpose and Scope

The purpose of this policy is to maintain worker exposure to lead at levels that are below the Permissible Exposure Level and the Action Level as defined herein. This Program applies to all construction and maintenance work operations where lead-containing materials (LCM) are disturbed in a manner that is likely to result in occupational exposure to lead. Materials that are likely to contain lead include: latex and oil-based

paints (especially those manufactured before 1978), radiation shielding materials, plumbing joints, solder, ceramics, and leaded glass. Operations performed that may result in occupational exposure to lead include: sanding, scraping, cutting, grinding, welding, manual demolition, drilling, heat gun application, spray painting with lead-based paint and sand blasting lead-based paint. The likelihood of generating airborne levels of lead greater than permitted under the OSHA regulation during these operations will depend on a variety of factors such as the condition of the LCM, size and scope of the work, location, etc.

5.2 Identification of Lead-Containing Paints (LCP)

It is the policy of the Department of Correction to assume that existing painted building components in each of its facilities are coated with a lead-containing paint. Prior to conducting work activities that may disturb lead, the Facility Lead Program Manager may either assume a building component is coated with a lead-containing paint or have the paint tested to determine its lead content.

The Facility Lead Program Manager may collect samples of paint from building materials that may be impacted by planned demolition or renovation activities. A chip of the paint, including all layers down to the substrate, may be collected and placed in a sealed plastic bag. The sample shall be sent to a laboratory approved by the DRM for analysis. With the approval and assistance of the DRM, the Facility Lead Program Manager may contract with an independent licensed lead inspector to conduct inspection. A Licensed Lead inspector may use X-ray fluorescence to determine lead content of paints. However, if X-ray fluorescence indicates no detectable lead, the lead inspector shall collect paint chip samples for analysis by atomic adsorption spectroscopy or equivalent method. Results of inspections shall be submitted to the DRM prior to commencing work impacting the subject materials.

5.3 Work Activities That May Disturb Lead-Containing Paints

- Demolition of gypsum board, plaster, concrete, and concrete block building components: Removal methods will include cutting/drilling with power tools (e.g., reciprocating saw, power drill) and the use of hand tools (e.g., sledge hammers, pry bars).

- Cutting penetrations through building components: Cutting methods through building components will include the use of power saws and drills.

- Repainting of building components not demolished: Existing paint will be made intact by wet hand scraping or other appropriate techniques.

- Removal of painted pipes, metal railings, metal doors, and other painted metal building components: Removal of metal components may include saw cutting or torch cutting. Torch cutting under this program will not be allowed on painted metal

components. Where torch cutting is required, paint must be removed from the cut area using appropriate wet techniques (e.g., chemical paste paint remover).

5.4 Administrative Controls

Where lead-containing paints or other lead-containing materials might be impacted by maintenance and demolition activities, Facility employees and inmates will be limited to conducting work where the disturbance of lead is incidental to the work being performed and/or the work takes place in limited areas, for short periods of time, and is not repetitive. Work activities that may be conducted by Facility employees and inmates include:

- Demolition work that encompass an area no larger than the area required to install a doorway.

- Minor repair work that includes patching and drilling materials containing lead.

- Repainting operations that include minor surface preparation using wet scraping techniques is also included in this category.

The Facility shall provide awareness training for each employee conducting work under this plan. Respiratory protection will not be required for above referenced activities which are conducted in accordance with Section 5.6. A worker conducting activities that may disturb lead may voluntarily request a respirator, regardless of actual exposure. Workers requesting respirators must receive medical surveillance and training in accordance with the requirements of 29 CFR 1910.134.

Construction work such as sanding, scraping, cutting, grinding, welding, and demolition that results in disturbance of lead and spray painting with lead-based paint shall not be conducted by Facility employees. The Department of Correction's policy is to utilize contractors to conduct this work and require that the contractor develop and implement a site-specific lead compliance program. The Contractor's site-specific Lead-Compliance Program shall be submitted to the Facility Lead-Management Program Manager for review. The site-specific Lead-Compliance Program shall include but not be limited to:

- Drawings for each work area indicating the location of construction barriers, hygiene facilities, ventilation requirements, and other relevant information
- Paint removal methods and procedures, including type of equipment and chemical usage (Each chemical used at DOC facilities must be approved by the DRM. The use of paint strippers containing methylene chloride or other hazardous constituents is prohibited)

- Material Safety Data Sheets

- Waste handling and disposal procedures

- Work area task schedule and staffing.

5.5 Prohibited Activities

For activities that impact lead-containing paints, the following activities, for either operations and maintenance or abatement activities are prohibited and will **not** be allowed.

- Use of a heat gun generating temperatures exceeding 700 degrees Fahrenheit
- Open flame torching
- Dry abrasive blasting using sand, grit or any other particulate
- Use of chemical strippers
- Mechanized sanding without HEPA filtered collection systems

5.6 Engineering Controls – Incidental Impact of Lead-Containing Paint

5.6.1 Routine Cleaning Routine cleaning, including sweeping or wall cleaning, in areas where paint chips or dusts are present should be performed using HEPA vacuums dedicated for lead, followed by wet methods (i.e. use wet towels, sponges or cloths). To specifically clean lead dusts from surfaces, a detergent such as tri-sodium phosphate (TSP) is recommended. Disposable gloves must be worn during cleaning. Respirators are not considered necessary for small cleaning jobs. Larger cleaning jobs may require respirators and should not be conducted by Facility employees or inmates. HEPA vacuums shall be maintained and filters changed in accordance with manufacture's instructions. HEPA filters, gloves, sponges, disposable towels and other non-cleanable materials used in the cleaning of lead painted or contaminated surfaces must be placed in plastic bags, labeled as "HAZARDOUS WASTE PAINT MATERIALS" and dated. Contact DRM for proper handling of waste materials**.**

5.6.2 Surface Preparation for Painting: Projects that require removal of intact paint or will involve a significant amount of scraping where the paint is very deteriorated and readily breaks into small particles and becomes dusty are not included in this procedure (see Section 5.7). Place polyethylene sheeting beneath work area. Remove paint from surfaces by hand scraping and sanding. Wet removal methods using misted water should always be used in conjunction with hand scraping. Wetting methods should use water in amounts that will not result in water that can drip, spill or leak onto the ground or adjacent surfaces. Sanding of painted surfaces should be minimized as much as possible. Dry removal methods such as sand blasting, power sanding, or other methods relying on high velocity mechanical abrasion that create airborne fine particulate are prohibited. Heat gun removal is prohibited. Power washing of exterior surfaces is prohibited.

5.6.3 Minor Demolition: Place polyethylene sheeting beneath work area. Perform minor demolition operations in a manner that does not contaminate the work area and generate airborne dust and particles unnecessarily. Remove and stockpile building components in the largest sections possible.

5.7 Engineering Controls – Renovation/Demolition Projects:

Construction work such as sanding, scraping, cutting, grinding, welding, and demolition that results in disturbance of lead and spray painting with lead-based paint, shall be conducted by an outside contractor approved by the DRM. The contractor shall develop a project specific Lead-Compliance Program in accordance with 29 CFR 1926.62 and submit to the DRM for review. Engineering controls, medical surveillance, respiratory protection, training, and hygiene requirements defined herein or by 29 CFR 1926.62 apply until and exposure assessment determines that lead concentrations are below the PEL.

When surface contamination of floors, furniture, and other items is suspected, surface contamination shall be removed by HEPA vacuuming or wet wiping with a soap solution. Prepare the work area in a manner that will protect building occupants and property from contact with LCM. Construct critical barriers and seal off openings and penetrations into the work area, including doorways and windows. Use polyethylene plastic sheet on wood studs if necessary; lap and tape joints of plastic sheeting to prevent LCM dust, particles, and fumes from leaving the enclosed area. As necessary to control work area dust, discontinue building ventilation within the work area and seal off the ventilation supply and return or exhaust diffusers, grilles or openings. Restrict access to essential personnel only.

Building Exteriors: Erect barricades and install warning tape or signs as necessary to prevent inadvertent exposure of passersby to LCM in all forms including dust, particles and fumes. Completely cover the grounds and vegetation with 8-mil thick polyethylene sheets with joints between sheets lapped and taped; with one edge taped to adjacent building surfaces below area of work; and with free ends secured in position with stakes, tie-down lines or weights. Cover sufficient ground area to capture wind-blown chips, dust and particles. Restrict access to essential personnel only. Dry abrasive blasting using sand, grit or any other particulate is prohibited. Power washing or wet blasting of painted surfaces is prohibited unless proposed procedures for containment and collection of airborne or waterborne lead is included in the Lead-Compliance Program and approved by the DRM.

After removal of waste, clean work tools/equipment and all potentially contaminated surfaces within the work area. Include, as necessary, the following surfaces:

- siding
- floors
- walls
- window sills
- trim
- ledges and projections

Use a solution of soap or detergent to wash surfaces or use a HEPA filter vacuum or other method that minimizes the likely hood of lead becoming airborne. Shower, or wash hands and face with soap and water immediately after completing work or taking a break.

Clean all respirators, inside and out, with a mild soap and water solution daily and at the end of the project.

5.8 Collection and Disposal

Collection and Disposal for work other than demolition, collect all LCM waste on plastic sheeting. Upon completion of work, roll plastic sheeting up in a manner that captures all waste inside sheeting and place in 4-6 mil thick plastic bags and seal in a manner that prevents spillage. If LCM is water saturated, place in doubled lined plastic bag. Plastic sheeting that has not been contaminated or has been cleaned with a HEPA vacuum may be disposed as normal waste. All disposable personal protective equipment worn during the work will be placed in plastic bags with other LCM waste. Liquid LCM waste will be placed in pails or drums with a leak-proof covers. Demolition waste cannot be discarded as regular waste until approved by DRM. Additional testing of the waste may be required. Contact DRM for proper procedures. Use preprinted labels on all containers of lead containing waste. Complete required information on the label: Name of contact person knowledgeable of the waste, building and room number where the waste was generated, and date. Secure the LCM waste in an appropriate location within the Facility it was generated from. Contact DRM to arrange pickup of the waste.

6.0 LEAD HAZARD COMMUNICATION

6.1 All Department of Correction employees will be notified of the lead hazards at the Facility in accordance with the Department of Correction's Hazard Communication Program.

6.2 Each employee performing work that may impact lead paint will receive notification and training as described herein and in accordance with this Program.

7.0 PERSONAL EXPOSURE MONITORING

7.1 Initial Assessment of Exposure to Lead: Contractors conducting work at DOC facilities shall provide an initial exposure assessment for proposed work activities. If necessary, the Contractor's Competent Person will collect initial personal samples representative of a full shift including at least one sample for each job classification in each work area, either for each shift or for the shift with the highest exposure level. Full shift personal samples shall be representative of the monitored employee's regular, daily exposure to lead. All sampling and analysis will be performed in accordance with accepted NIOSH or OSHA methods. A laboratory accredited by the American Industrial Hygiene Association (AIHA) shall perform sample analysis.

7.2 Protection of employees during assessment of exposure.

a) With respect to the lead-related tasks listed below, until the initial employee exposure assessment is completed and documents that the employee performing any of the listed tasks is not exposed above the PEL, it will be assumed that

workers are being exposed above the PEL, but not in excess of ten (10) times the PEL. Employee protective measures prescribed in 29 CFR 1926.62 shall be implemented. The tasks covered by this requirement are:

- Where lead containing coatings or paint are present: manual demolition of structures (e.g., plaster, dry wall), manual scraping, manual sanding, heat gun applications, and power tool cleaning with dust collection systems;

- Spray painting with lead paint.

b) With respect to the following tasks, until the initial employee exposure assessment is completed, and documents that the employee performing any of the listed tasks is not exposed in excess of 500 µg/m^3, the employer shall treat the employee as if the employee were exposed to lead in excess of 500 µg/m^3 and shall implement employee protective measures as prescribed by 29 CFR 1926.62. Where the employer does establish that the employee is exposed to levels of lead below 500 µg/m^3, the employer may provide the exposed employee with the appropriate respirator prescribed for such use at such lower exposures. The tasks covered by this requirement are:

- Using lead containing mortar; lead burning

- Where lead containing coatings or paint are present: rivet busting; power tool cleaning without dust collection systems; cleanup activities where dry expendable abrasives are used; and abrasive blasting enclosure movement and removal.

c) With respect to the following tasks, and where lead is present, until the initial employee exposure assessment is completed, and documents that the employee performing any of the listed tasks is not exposed to lead in excess of 2,500 µg/m^3 (50x PEL), the employer shall treat the employee as if the employee were exposed to lead in excess of 2,500 µg/m^3 and shall implement employee protective measures as prescribed by 29 CFR 1926.62. Where the employer does establish that the employee is exposed to levels of lead below 2,500 µg/m^3, the employer may provide the exposed employee with the appropriate respirator prescribed for use at such lower exposures. Interim protection as described in this paragraph is required where lead containing coatings or paint are present on structures when performing:

- Abrasive blasting,

- Welding,

- Cutting, and

- Torch burning.

d) Until the initial exposure assessment as required is completed for all tasks described above, each affected worker shall be provided interim protection as follows:

- Appropriate respiratory protection as indicated by 29 CFR 1926.62,
- Appropriate personal protective clothing and equipment as indicated by 29 CFR 1926.62,
- Change areas as described by 29 CFR 1926.62,
- Hand washing facilities as described by 29 CFR 1926.62,
- Biological monitoring in accordance with the requirements of 29 CFR § 1926.62 (j)(1)(i), to consist of blood sampling and analysis for lead and zinc protoporphyrin levels, and
- Training as required under 29 CFR § 1926.62 (l)(1)(i) regarding 29 CFR § 1926.59, Hazard Communication; training as required under 29 CFR § 1926.62(l)(2)(ii)(C), regarding use of respirators; and training in accordance with 29 CFR § 1926.21, Safety Training and Education.

7.3. If the initial determination reveals employee exposure to be below the action level, further exposure determination need not be repeated except whenever there has been a change of equipment, process, control, personnel or a new task has been initiated that may result in additional employees being exposed to lead at or above the action level or may result in employees already exposed at or above the action level being exposed above the PEL.

7.4. If the initial determination or subsequent determination reveals employee exposure to be at or above the action level but at or below the PEL the Contractor will perform additional monitoring, the frequency of which will be determined by the Contractors's Competent Person but at least every 6 months. Monitoring will continue until at least two consecutive measurements, taken at least 7 days apart, are below the action level.

7.5. If the initial determination reveals that employee exposure is above the PEL the Contractor will perform monitoring at least quarterly. Monitoring will continue at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are at or below the PEL but at or above the action level at which time the employer shall repeat monitoring for that employee at the frequency specified above.

7.6. Within 5 working days after completion of the exposure assessment the employer shall notify each employee in writing of the results which represent that employee's exposure. Whenever the results indicate that the representative employee's exposure, without regard to respirators, is at or above the PEL, the employer shall include in the written notice a statement that the employee's exposure was at or above that level and a description of the corrective action taken or to be taken to reduce exposure to below that level.

8.0 HOUSEKEEPING

8.1 All surfaces shall be maintained as free as practicable of accumulations of lead.

8.2 Clean-up of floors and other surfaces where lead accumulates shall wherever possible, be cleaned by vacuuming or other methods that minimize the likelihood of lead becoming airborne.

8.3 Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective.

8.4 Where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters and used and emptied in a manner which minimizes the reentry of lead into the workplace.

8.5 Compressed air shall not be used to remove lead from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the airborne dust created by the compressed air.

9.0 HYGIENE FACILITIES AND PRACTICES

9.1 The Contractor shall provide clean change areas for employees whose airborne exposure to lead is above the PEL, and as interim protection for employees performing tasks as specified in Section 7.2. The change areas will be equipped with separate storage facilities for protective work clothing and equipment and for street clothes which prevent cross-contamination. The Contractor will assure that employees do not leave the workplace wearing any protective clothing or equipment that is required to be worn during the work shift.

9.2 Shower facilities will be provided, where feasible, for use by employees whose airborne exposure to lead is above the PEL. Where shower facilities are available, each employee will be required to shower at the end of the work shift. An adequate supply of cleansing agents and towels for use by affected employees will be provided.

9.3 Adequate handwashing facilities will be provided for use by employees exposed to lead. Where showers are not provided the employer shall assure that employees wash their hands and face at the end of the work-shift.

9.4 Separate eating areas will be provided. Eating areas will be maintained as free as practicable from lead contamination and be readily accessible to employees.

9.5 The Contractor will assure that employees whose airborne exposure to lead is above the PEL wash their hands and face prior to eating, drinking, smoking or applying cosmetics.

9.6 The Contractor will assure that employees do not enter eating areas with protective work clothing or equipment unless surface lead dust has been removed by vacuuming, downdraft booth, or other cleaning method that limits dispersion of lead dust.

10.0 EMPLOYEE INFORMATION AND TRAINING

10.1 The Facility will communicate information concerning lead hazards according to the requirements of Department of Correction's Hazard Communication Program, including but not limited to the requirements concerning warning signs and labels, material safety data sheets (MSDS), and employee information and training. In addition, training will include the contents of the Lead Management Program and the following:

- The contents of 29 CFR § 1926.62 and its appendices (Appendices A and B are attached for reference);
- The specific nature of the operations which could result in exposure to lead above the action level;
- The engineering controls and work practices associated with the employee's job assignment including training of employees to follow relevant good work practices described herein or in Appendix B of 29 CFR § 1926.62;

11.0 RESPIRATORY PROTECTION

11.1 Facility employees and inmates are prohibited from conducting activities impacting lead that may result in exposures above the Action Level. Hence, facility employees are not required to use respirators. When conducting activities that may impact lead-containing paint, employees may request a respirator. Employees requesting respirators must receive medical surveillance and training in accordance with the requirements of 29 CFR 1910.134.

Appendix A

Appendix A to 29 CFR §1926.62-Substance Data Sheet for Occupational Exposure to Lead

I. Substance Identification

A. *Substance*: Pure lead (Pb) is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds.

B. *Compounds covered by the standard*: The word "lead" when used in this interim final standard means elemental lead, all inorganic lead compounds and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.

C. *Uses*: Exposure to lead occurs in several different occupations in the construction industry, including demolition or salvage of structures where lead or lead-containing materials are present; removal or encapsulation of lead-containing materials, new construction, alteration, repair, or renovation of structures that contain lead or materials containing lead; installation of products containing lead. In addition, there are construction related activities where exposure to lead may occur, including transportation, disposal, storage, or containment of lead or materials containing lead on construction sites, and maintenance operations associated with construction activities.

D. *Permissible exposure*: The permissible exposure limit (PEL) set by the standard is 50 micrograms of lead per cubic meter of air (50 $\mu g/m^3$), averaged over an 8-hour workday.

E. *Action level*: The interim final standard establishes an action level of 30 micrograms of lead per cubic meter of air (30 $\mu g/m^3$), averaged over an 8-hour workday. The action level triggers several ancillary provisions of the standard such as exposure monitoring, medical surveillance, and training.

II. Health Hazard Data

A. *Ways in which lead enters your body.* When absorbed into your body in certain doses, lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed. Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead residue is scattered or becomes airborne as a dust or a fume, the necessary respiratory protection must be used. A HEPA filter mask is effective in preventing lead from entering the respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion. A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your

blood stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems.

B. *Effects of overexposure to lead-*

(1) *Short term (acute) overexposure.* Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.

(2) *Long-term (chronic) overexposure.* Chronic overexposure to lead may result in severe damage to your blood-forming, nervous, urinary and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain. Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy. Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible. Chronic overexposure to lead impairs the reproductive systems of both men and women. Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy

may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood. Overexposure to lead also disrupts the blood-forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.

(3) *Health protection goals of the standard.* Prevention of adverse health effects for most workers from exposure to lead throughout a working lifetime requires that a worker's blood lead level (BLL, also expressed as PbB) be maintained at or below forty micrograms per deciliter of whole blood (40 µg/dl). The blood lead levels of workers (both male and female workers) who intend to have children should be maintained below 30 µg/dl to minimize adverse reproductive health effects to the parents and to the developing fetus. The measurement of your blood lead level (BLL) is the most useful indicator of the amount of lead being absorbed by your body. Blood lead levels are most often reported in units of milligrams (mg) or micrograms (µg) of lead (1 mg=1000 µg) per 100 grams (100g), 100 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometime BLLs are expressed in the form of mg% or µg%. This is a shorthand notation for 100g, 100 ml, or dl. (References to BLL measurements in this standard are expressed in the form of µg/dl.)

BLL measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. BLL measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead-related diseases, however, has focused heavily on associations between BLLs and various diseases. As a result, your BLL is an important indicator of the likelihood that you will gradually acquire a lead-related health impairment or disease.

Once your blood lead level climbs above 40 µg/dl, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular BLL in a given person will cause a particular effect. Studies have associated fatal encephalopathy with BLLs as low as 150 µg/dl. Other studies have shown other forms of diseases in some workers with BLLs well below 80 µg/dl. Your BLL is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated BLLs. The longer you have an elevated BLL, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage. The best way to prevent all forms of lead-related impairments and diseases-both short term and long term-is to maintain your BLL below 40 µg/dl. The provisions of the standard are designed with this end in mind.

Your employer has prime responsibility to assure that the provisions of the standard are complied with both by the company and by individual workers. You, as a worker, however, also have a responsibility to assist your employer in complying with the standard. You can play a key role in protecting your own health by learning about the

lead hazards and their control, learning what the standard requires, following the standard where it governs your own actions, and seeing that your employer complies with provisions governing his or her actions.

(4) *Reporting signs and symptoms of health problems.* You should immediately notify your employer if you develop signs or symptoms associated with lead poisoning or if you desire medical advice concerning the effects of current or past exposure to lead or your ability to have a healthy child. You should also notify your employer if you have difficulty breathing during a respirator fit test or while wearing a respirator. In each of these cases, your employer must make available to you appropriate medical examinations or consultations. These must be provided at no cost to you and at a reasonable time and place. The standard contains a procedure whereby you can obtain a second opinion by a physician of your choice if your employer selected the initial physician.

Appendix B

Appendix B to 29 CFR §1926.62-Employee Standard Summary

This appendix summarizes key provisions of the interim final standard for lead in construction that you as a worker should become familiar with.

I. Permissible Exposure Limit (PEL)-Paragraph (C)

The standard sets a permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air (50 µg/m^3), averaged over an 8-hour workday which is referred to as a time-weighted average (TWA). This is the highest level of lead in the air to which you may be permissibly exposed over an 8-hour workday. However, since this is an 8-hour average, short exposures above the PEL are permitted so long as for each 8-hour work day your average exposure does not exceed this level. This interim final standard, however, takes into account the fact that your daily exposure to lead can extend beyond a typical 8-hour workday as the result of overtime or other alterations in your work schedule. To deal with this situation, the standard contains a formula which reduces your permissible exposure when you are exposed more than 8 hours. For example, if you are exposed to lead for 10 hours a day, the maximum permitted average exposure would be 40 µg/m^3.

II. Exposure Assessment-Paragraph (D)

If lead is present in your workplace in any quantity, your employer is required to make an initial determination of whether any employee's exposure to lead exceeds the action level (30 µg/m^3 averaged over an 8-hour day). Employee exposure is that exposure which would occur if the employee were not using a respirator. This initial determination requires your employer to monitor workers' exposures unless he or she has objective data which can demonstrate conclusively that no employee will be exposed to lead in excess of the action level. Where objective data is used in lieu of actual monitoring the employer must establish and maintain an accurate record, documenting its relevancy in assessing exposure levels for current job conditions. If such objective data is available, the employer need proceed no further on employee exposure assessment until such time that conditions have changed and the determination is no longer valid.

Objective data may be compiled from various sources, e.g., insurance companies and trade associations and information from suppliers or exposure data collected from similar operations. Objective data may also comprise previously-collected sampling data including area monitoring. If it cannot be determined through using objective data that worker exposure is less than the action level, your employer must conduct monitoring or must rely on relevant previous personal sampling, if available. Where monitoring is required for the initial determination, it may be limited to a representative number of employees who are reasonably expected to have the highest exposure levels. If your employer has conducted appropriate air sampling for lead in the past 12 months, he or she may use these results, provided they are applicable to the same employee tasks and exposure conditions and meet the requirements for accuracy as specified in the standard. As

with objective data, if such results are relied upon for the initial determination, your employer must establish and maintain a record as to the relevancy of such data to current job conditions.

If there have been any employee complaints of symptoms which may be attributable to exposure to lead or if there is any other information or observations which would indicate employee exposure to lead, this must also be considered as part of the initial determination.

If this initial determination shows that a reasonable possibility exists that any employee may be exposed, without regard to respirators, over the action level, your employer must set up an air monitoring program to determine the exposure level representative of each employee exposed to lead at your workplace. In carrying out this air monitoring program, your employer is not required to monitor the exposure of every employee, but he or she must monitor a representative number of employees and job types. Enough sampling must be done to enable each employee's exposure level to reasonably represent full shift exposure. In addition, these air samples must be taken under conditions which represent each employee's regular, daily exposure to lead. Sampling performed in the past 12 months may be used to determine exposures above the action level if such sampling was conducted during work activities essentially similar to present work conditions.

The standard lists certain tasks which may likely result in exposures to lead in excess of the PEL and, in some cases, exposures in excess of 50 times the PEL. If you are performing any of these tasks, your employer must provide you with appropriate respiratory protection, protective clothing and equipment, change areas, hand washing facilities, biological monitoring, and training until such time that an exposure assessment is conducted which demonstrates that your exposure level is below the PEL.

If you are exposed to lead and air sampling is performed, your employer is required to notify you in writing within 5 working days of the air monitoring results which represent your exposure. If the results indicate that your exposure exceeds the PEL (without regard to your use of a respirator), then your employer must also notify you of this in writing, and provide you with a description of the corrective action that has been taken or will be taken to reduce your exposure.

Your exposure must be rechecked by monitoring, at least every six months, if your exposure is at or over the action level but below the PEL. Your employer may discontinue monitoring for you if 2 consecutive measurements, taken at least 7 days apart, are at or below the action level. Air monitoring must be repeated every 3 months if you are exposed over the PEL. Your employer must continue monitoring for you at this frequency until 2 consecutive measurements, taken at least 7 days apart, are below the PEL but above the action level, at which time your employer must repeat monitoring of your exposure every six months and may discontinue monitoring only after your exposure drops to or below the action level. However, whenever there is a change of equipment, process, control, or personnel or a new type of job is added at your workplace which may result in new or additional exposure to lead, your employer must perform additional monitoring.

III. Methods of Compliance-Paragraph (E)

Your employer is required to assure that no employee is exposed to lead in excess of the PEL as an 8-hour TWA. The interim final standard for lead in construction requires employers to institute engineering and work practice controls including administrative controls to the extent

feasible to reduce employee exposure to lead. Where such controls are feasible but not adequate to reduce exposures below the PEL , they must be used nonetheless to reduce exposures to the lowest level that can be accomplished by these means and then supplemented with appropriate respiratory protection.

Your employer is required to develop and implement a written compliance program prior to the commencement of any job where employee exposures may reach the PEL as an 8-hour TWA. The interim final standard identifies the various elements that must be included in the plan. For example, employers are required to include a description of operations in which lead is emitted, detailing other relevant information about the operation such as the type of equipment used, the type of material involved, employee job responsibilities, operating procedures and maintenance practices. In addition, your employer's compliance plan must specify the means that will be used to achieve compliance and, where engineering controls are required, include any engineering plans or studies that have been used to select the control methods. If administrative controls involving job rotation are used to reduce employee exposure to lead, the job rotation schedule must be included in the compliance plan. The plan must also detail the type of protective clothing and equipment, including respirators, housekeeping and hygiene practices that will be used to protect you from the adverse effects of exposure to lead.

The written compliance program must be made available, upon request, to affected employees and their designated representatives, the Assistant Secretary and the Director.

Finally, the plan must be reviewed and updated at least every 6 months to assure it reflects the current status in exposure control.

IV. Respiratory Protection-Paragraph (F)

Your employer is required to provide and assure your use of respirators when your exposure to lead is not controlled below the PEL by other means. The employer must pay the cost of the respirator. Whenever you request one, your employer is also required to provide you a respirator even if your air exposure level is not above the PEL. You might desire a respirator when, for example, you have received medical advice that your lead absorption should be decreased. Or, you may intend to have children in the near future, and want to reduce the level of lead in your body to minimize adverse reproductive effects. While respirators are the least satisfactory means of controlling your exposure, they are capable of providing significant protection if properly chosen, fitted, worn, cleaned, maintained, and replaced when they stop providing adequate protection.

Your employer is required to select respirators from the types listed in Table I of the Respiratory Protection section of the standard. Any respirator chosen must be approved by the Mine Safety and Health Administration (MSHA) or the National Institute for Occupational Safety and Health (NIOSH). This respirator selection table will enable your employer to choose a type of respirator which will give you a proper amount of protection based on your airborne lead exposure. Your employer may select a type of respirator that provides greater protection than that required by the standard; that is, one recommended for a higher concentration of lead than is present in your workplace. For example, a powered air purifying respirator (PAPR) is much more protective than a typical negative pressure respirator, and may also be more comfortable to wear. A PAPR has a filter, cartridge or canister to clean the air, and a power source which continuously blows filtered air into your breathing zone. Your employer might make a PAPR available to you to ease

the burden of having to wear a respirator for long periods of time. The standard provides that you can obtain a PAPR upon request.

Your employer must also start a Respiratory Protection Program. This program must include written procedures for the proper selection, use, cleaning, storage, and maintenance of respirators.

Your employer must assure that your respirator facepiece fits properly. Proper fit of a respirator facepiece is critical. Obtaining a proper fit on each employee may require your employer to make available two or three different mask types. In order to assure that your respirator fits properly and that facepiece leakage is minimized, your employer must give you either a qualitative fit test or a quantitative fit test (if you use a negative pressure respirator) in accordance with appendix D. Any respirator which has a filter, cartridge or canister which cleans the work room air before you breathe it and which requires the force of your inhalation to draw air through the filtering element is a negative pressure respirator. A positive pressure respirator supplies air to you directly. A quantitative fit test uses a sophisticated machine to measure the amount, if any, of test material that leaks into the facepiece of your respirator.

You must also receive from your employer proper training in the use of respirators. Your employer is required to teach you how to wear a respirator, to know why it is needed, and to understand its limitations.

Your employer must test the effectiveness of your negative pressure respirator initially and at least every six months thereafter with a "qualitative fit test." In this test, the fit of the facepiece is checked by seeing if you can smell a substance placed outside the respirator. If you can, there is appreciable leakage where the facepiece meets your face.

The standard provides that if your respirator uses filter elements, you must be given an opportunity to change the filter elements whenever an increase in breathing resistance is detected. You also must be permitted to periodically leave your work area to wash your face and respirator facepiece whenever necessary to prevent skin irritation. If you ever have difficulty in breathing during a fit test or while using a respirator, your employer must make a medical examination available to you to determine whether you can safely wear a respirator. The result of this examination may be to give you a positive pressure respirator (which reduces breathing resistance) or to provide alternative means of protection.

V. Protective Work Clothing and Equipment-Paragraph (G)

If you are exposed to lead above the PEL as an 8-hour TWA, without regard to your use of a respirator, or if you are exposed to lead compounds such as lead arsenate or lead azide which can cause skin and eye irritation, your employer must provide you with protective work clothing and equipment appropriate for the hazard. If work clothing is provided, it must be provided in a clean and dry condition at least weekly, and daily if your airborne exposure to lead is greater than 200 $\mu g/m^3$. Appropriate protective work clothing and equipment can include coveralls or similar full-body work clothing, gloves, hats, shoes or disposable shoe coverlets, and face shields or vented goggles. Your employer is required to provide all such equipment at no cost to you. In addition, your employer is responsible for providing repairs and replacement as necessary, and also is responsible for the cleaning, laundering or disposal of protective clothing and equipment.

The interim final standard requires that your employer assure that you follow good work practices when you are working in areas where your exposure to lead may exceed the PEL. With respect to protective clothing and equipment, where appropriate, the following procedures should be observed prior to beginning work:

1. Change into work clothing and shoe covers in the clean section of the designated changing areas;

2. Use work garments of appropriate protective gear, including respirators before entering the work area; and

3. Store any clothing not worn under protective clothing in the designated changing area.

Workers should follow these procedures upon leaving the work area:

1. HEPA vacuum heavily contaminated protective work clothing while it is still being worn. At no time may lead be removed from protective clothing by any means which result in uncontrolled dispersal of lead into the air;

2. Remove shoe covers and leave them in the work area;

3. Remove protective clothing and gear in the dirty area of the designated changing area. Remove protective coveralls by carefully rolling down the garment to reduce exposure to dust.

4. Remove respirators last; and

5. Wash hands and face.

Workers should follow these procedures upon finishing work for the day (in addition to procedures described above):

1. Where applicable, place disposal coveralls and shoe covers with the abatement waste;

2. Contaminated clothing which is to be cleaned, laundered or disposed of must be placed in closed containers in the change room.

3. Clean protective gear, including respirators, according to standard procedures;

4. Wash hands and face again. If showers are available, take a shower and wash hair. If shower facilities are not available at the work site, shower immediately at home and wash hair.

VI. Housekeeping-Paragraph (H)

Your employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. Vacuuming is the preferred method of meeting this requirement, and the use of compressed air to clean floors and other surfaces is generally prohibited unless removal with compressed air is done in conjunction with ventilation systems designed to contain dispersal of the lead dust. Dry or wet sweeping, shoveling, or brushing may not be used except where vacuuming or other equally effective methods have been tried and do not work. Vacuums must be used equipped with a special filter called a high-efficiency

particulate air (HEPA) filter and emptied in a manner which minimizes the reentry of lead into the workplace.

VII. Hygiene Facilities and Practices-Paragraph (I)

The standard requires that hand washing facilities be provided where occupational exposure to lead occurs. In addition, change areas, showers (where feasible), and lunchrooms or eating areas are to be made available to workers exposed to lead above the PEL. Your employer must assure that except in these facilities, food and beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied, where airborne exposures are above the PEL. Change rooms provided by your employer must be equipped with separate storage facilities for your protective clothing and equipment and street clothes to avoid cross-contamination. After showering, no required protective clothing or equipment worn during the shift may be worn home. It is important that contaminated clothing or equipment be removed in change areas and not be worn home or you will extend your exposure and expose your family since lead from your clothing can accumulate in your house, car, etc.

Lunchrooms or eating areas may not be entered with protective clothing or equipment unless surface dust has been removed by vacuuming, downdraft booth, or other cleaning method. Finally, workers exposed above the PEL must wash both their hands and faces prior to eating, drinking, smoking or applying cosmetics.

All of the facilities and hygiene practices just discussed are essential to minimize additional sources of lead absorption from inhalation or ingestion of lead that may accumulate on you, your

clothes, or your possessions. Strict compliance with these provisions can virtually eliminate several sources of lead exposure which significantly contribute to excessive lead absorption.

VIII. Medical Surveillance-Paragraph (J)

The medical surveillance program is part of the standard's comprehensive approach to the prevention of lead-related disease. Its purpose is to supplement the main thrust of the standard which is aimed at minimizing airborne concentrations of lead and sources of ingestion. Only medical surveillance can determine if the other provisions of the standard have affectively protected you as an individual. Compliance with the standard's provision will protect most workers from the adverse effects of lead exposure, but may not be satisfactory to protect individual workers (1) who have high body burdens of lead acquired over past years, (2) who have additional uncontrolled sources of non-occupational lead exposure, (3) who exhibit unusual variations in lead absorption rates, or (4) who have specific non-work related medical conditions which could be aggravated by lead exposure (e.g., renal disease, anemia). In addition, control systems may fail, or hygiene and respirator programs may be inadequate. Periodic medical surveillance of individual workers will help detect those failures. Medical surveillance will also be important to protect your reproductive ability-regardless of whether you are a man or woman.

All medical surveillance required by the interim final standard must be performed by or under the supervision of a licensed physician. The employer must provide required medical surveillance without cost to employees and at a reasonable time and place. The standard's medical surveillance program has two parts-periodic biological monitoring and medical examinations. Your employer's obligation to offer you medical surveillance is triggered by the

results of the air monitoring program. Full medical surveillance must be made available to all employees who are or may be exposed to lead in excess of the action level for more than 30 days a year and whose blood lead level exceeds 40 µg/dl. Initial medical surveillance consisting of blood sampling and analysis for lead and zinc protoporphyrin must be provided to all employees exposed at any time (1 day) above the action level.

Biological monitoring under the standard must be provided at least every 2 months for the first 6 months and every 6 months thereafter until your blood lead level is below 40 µg/dl. A zinc protoporphyrin (ZPP) test is a very useful blood test which measures an adverse metabolic effect of lead on your body and is therefore an indicator of lead toxicity.

If your BLL exceeds 40 µg/dl the monitoring frequency must be increased from every 6 months to at least every 2 months and not reduced until two consecutive BLLs indicate a blood lead level below 40 µg/dl. Each time your BLL is determined to be over 40 µg/dl, your employer must notify you of this in writing within five working days of his or her receipt of the test results. The employer must also inform you that the standard requires temporary medical removal with economic protection when your BLL exceeds 50 µg/dl. (See Discussion of Medical Removal Protection-Paragraph (k).) Anytime your BLL exceeds 50 µg/dl your employer must make available to you within two weeks of receipt of these test results a second follow-up BLL test to confirm your BLL. If the two tests both exceed 50 µg/dl, and you are temporarily removed, then your employer must make successive BLL tests available to you on a monthly basis during the period of your removal.

Medical examinations beyond the initial one must be made available on an annual basis if your blood lead level exceeds 40 µg/dl at any time during the preceding year and you are being exposed above the airborne action level of 30 $\mu g/m^3$ for 30 or more days per year. The initial examination will provide information to establish a baseline to which subsequent data can be compared.

An initial medical examination to consist of blood sampling and analysis for lead and zinc protoporphyrin must also be made available (prior to assignment) for each employee being assigned for the first time to an area where the airborne concentration of lead equals or exceeds the action level at any time. In addition, a medical examination or consultation must be made available as soon as possible if you notify your employer that you are experiencing signs or symptoms commonly associated with lead poisoning or that you have difficulty breathing while wearing a respirator or during a respirator fit test. You must also be provided a medical examination or consultation if you notify your employer that you desire medical advice concerning the effects of current or past exposure to lead on your ability to procreate a healthy child.

Finally, appropriate follow-up medical examinations or consultations may also be provided for employees who have been temporarily removed from exposure under the medical removal protection provisions of the standard. (See Part IX, below.)

The standard specifies the minimum content of pre-assignment and annual medical examinations. The content of other types of medical examinations and consultations is left up to the sound discretion of the examining physician. Pre-assignment and annual medical examinations must include (1) a detailed work history and medical history; (2) a thorough

physical examination, including an evaluation of your pulmonary status if you will be required to use a respirator; (3) a blood pressure measurement; and (4) a series of laboratory tests designed to check your blood chemistry and your kidney function. In addition, at any time upon your request, a laboratory evaluation of male fertility will be made (microscopic examination of a sperm sample), or a pregnancy test will be given.

The standard does not require that you participate in any of the medical procedures, tests, etc. which your employer is required to make available to you. Medical surveillance can, however, play a very important role in protecting your health. You are strongly encouraged, therefore, to participate in a meaningful fashion. The standard contains a multiple physician review mechanism which will give you a chance to have a physician of your choice directly participate in the medical surveillance program. If you are dissatisfied with an examination by a physician chosen by your employer, you can select a second physician to conduct an independent analysis. The two doctors would attempt to resolve any differences of opinion, and select a third physician to resolve any firm dispute. Generally your employer will choose the physician who conducts medical surveillance under the lead standard-unless you and your employer can agree on the choice of a physician or physicians. Some companies and unions have agreed in advance, for example, to use certain independent medical laboratories or panels of physicians. Any of these arrangements are acceptable so long as required medical surveillance is made available to workers.

The standard requires your employer to provide certain information to a physician to aid in his or her examination of you. This information includes (1) the standard and its appendices, (2) a description of your duties as they relate to occupational lead exposure, (3) your exposure level or anticipated exposure level, (4) a description of any personal protective equipment you wear, (5) prior blood lead level results, and (6) prior written medical opinions concerning you that the employer has. After a medical examination or consultation, the physician must prepare a written report which must contain (1) the physician's opinion as to whether you have any medical condition which places you at increased risk of material impairment to health from exposure to lead, (2) any recommended special protective measures to be provided to you, (3) any blood lead level determinations, and (4) any recommended limitation on your use of respirators. This last element must include a determination of whether you can wear a powered air purifying respirator (PAPR) if you are found unable to wear a negative pressure respirator.

The medical surveillance program of the interim lead standard may at some point in time serve to notify certain workers that they have acquired a disease or other adverse medical condition as a result of occupational lead exposure. If this is true, these workers might have legal rights to compensation from public agencies, their employers, firms that supply hazardous products to their employers, or other persons. Some states have laws, including worker compensation laws, that disallow a worker who learns of a job-related health impairment to sue, unless the worker sues within a short period of time after learning of the impairment. (This period of time may be a matter of months or years.) An attorney can be consulted about these possibilities. It should be stressed that OSHA is in no way trying to either encourage or discourage claims or lawsuits. However, since results of the standard's medical surveillance program can significantly affect the legal remedies of a worker who has acquired a job-related disease or impairment, it is proper for OSHA to make you aware of this.

The medical surveillance section of the standard also contains provisions dealing with chelation. Chelation is the use of certain drugs (administered in pill form or injected into the body) to reduce the amount of lead absorbed in body tissues. Experience accumulated by the medical and scientific communities has largely confirmed the effectiveness of this type of therapy for the treatment of very severe lead poisoning. On the other hand, it has also been established that there can be a long list of extremely harmful side effects associated with the use of chelating agents. The medical community has balanced the advantages and disadvantages resulting from the use of chelating agents in various circumstances and has established when the use of these agents is acceptable. The standard includes these accepted limitations due to a history of abuse of chelation therapy by some lead companies. The most widely used chelating agents are calcium disodium EDTA, (Ca Na2 EDTA), Calcium Disodium Versenate (Versenate), and d-penicillamine (pencillamine or Cupramine).

The standard prohibits "prophylactic chelation" of any employee by any person the employer retains, supervises or controls. "Prophylactic chelation" is the routine use of chelating or similarly acting drugs to prevent elevated blood levels in workers who are occupationally exposed to lead, or the use of these drugs to routinely lower blood lead levels to predesignated concentrations believed to be "safe". It should be emphasized that where an employer takes a worker who has no symptoms of lead poisoning and has chelation carried out by a physician (either inside or outside of a hospital) solely to reduce the worker's blood lead level, that will generally be considered prophylactic chelation. The use of a hospital and a physician does not mean that prophylactic chelation is not being performed. Routine chelation to prevent increased or reduce current blood lead levels is unacceptable whatever the setting.

The standard allows the use of "therapeutic" or "diagnostic" chelation if administered under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring. Therapeutic chelation responds to severe lead poisoning where there are marked symptoms. Diagnostic chelation involves giving a patient a dose of the drug then collecting all urine excreted for some period of time as an aid to the diagnosis of lead poisoning.

In cases where the examining physician determines that chelation is appropriate, you must be notified in writing of this fact before such treatment. This will inform you of a potentially harmful treatment, and allow you to obtain a second opinion.

IX. Medical Removal Protection-Paragraph (K)

Excessive lead absorption subjects you to increased risk of disease. Medical removal protection (MRP) is a means of protecting you when, for whatever reasons, other methods, such as engineering controls, work practices, and respirators, have failed to provide the protection you need. MRP involves the temporary removal of a worker from his or her regular job to a place of significantly lower exposure without any loss of earnings, seniority, or other employment rights or benefits. The purpose of this program is to cease further lead absorption and allow your body to naturally excrete lead which has previously been absorbed. Temporary medical removal can result from an elevated blood lead level, or a medical opinion. For up to 18 months, or for as long as the job the employee was removed from lasts, protection is provided as a result of either form of removal. The vast majority of removed workers, however, will return to their former jobs long before this eighteen month period expires.

You may also be removed from exposure even if your blood lead level is below 50 µg/dl if a final medical determination indicates that you temporarily need reduced lead exposure for medical reasons. If the physician who is implementing your employers medical program makes a final written opinion recommending your removal or other special protective measures, your employer must implement the physician's recommendation. If you are removed in this manner, you may only be returned when the doctor indicates that it is safe for you to do so.

The standard does not give specific instructions dealing with what an employer must do with a removed worker. Your job assignment upon removal is a matter for you, your employer and your union (if any) to work out consistent with existing procedures for job assignments. Each removal must be accomplished in a manner consistent with existing collective bargaining relationships. Your employer is given broad discretion to implement temporary removals so long as no attempt is made to override existing agreements. Similarly, a removed worker is provided no right to veto an employer's choice which satisfies the standard.

In most cases, employers will likely transfer removed employees to other jobs with sufficiently low lead exposure. Alternatively, a worker's hours may be reduced so that the time weighted average exposure is reduced, or he or she may be temporarily laid off if no other alternative is feasible.

In all of these situations, MRP benefits must be provided during the period of removal-i.e., you continue to receive the same earnings, seniority, and other rights and benefits you would have had if you had not been removed. Earnings include more than just your base wage; it includes overtime, shift differentials, incentives, and other compensation you would have earned if you had not been removed. During the period of removal you must also be provided with appropriate follow-up medical surveillance. If you were removed because your blood lead level was too high, you must be provided with a monthly blood test. If a medical opinion caused your removal, you must be provided medical tests or examinations that the doctor believes to be appropriate. If you do not participate in this follow up medical surveillance, you may lose your eligibility for MRP benefits.

When you are medically eligible to return to your former job, your employer must return you to your "former job status." This means that you are entitled to the position, wages, benefits, etc., you would have had if you had not been removed. If you would still be in your old job if no removal had occurred that is where you go back. If not, you are returned consistent with whatever job assignment discretion your employer would have had if no removal had occurred. MRP only seeks to maintain your rights, not expand them or diminish them.

If you are removed under MRP and you are also eligible for worker compensation or other compensation for lost wages, your employer's MRP benefits obligation is reduced by the amount that you actually receive from these other sources. This is also true if you obtain other employment during the time you are laid off with MRP benefits.

The standard also covers situations where an employer voluntarily removes a worker from exposure to lead due to the effects of lead on the employee's medical condition, even though the standard does not require removal. In these situations MRP benefits must still be provided as though the standard required removal. Finally, it is important to note that in all cases where

removal is required, respirators cannot be used as a substitute. Respirators may be used before removal becomes necessary, but not as an alternative to a transfer to a low exposure job, or to a lay-off with MRP benefits.

X. Employee Information and Training-Paragraph (L)

Your employer is required to provide an information and training program for all employees exposed to lead above the action level or who may suffer skin or eye irritation from lead compounds such as lead arsenate or lead azide. The program must train these employees regarding the specific hazards associated with their work environment, protective measures which can be taken, including the contents of any compliance plan in effect, the danger of lead to their bodies (including their reproductive systems), and their rights under the standard. All employees must be trained prior to initial assignment to areas where there is a possibility of exposure over the action level.

This training program must also be provided at least annually thereafter unless further exposure above the action level will not occur.

XI. Signs-Paragraph (M)

The standard requires that the following warning sign be posted in work areas where the exposure to lead exceeds the PEL:

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

These signs are to be posted and maintained in a manner which assures that the legend is readily visible.

XII. Recordkeeping-Paragraph (N)

Your employer is required to keep all records of exposure monitoring for airborne lead. These records must include the name and job classification of employees measured, details of the sampling and analytical techniques, the results of this sampling, and the type of respiratory protection being worn by the person sampled. Such records are to be retained for at least 30 years. Your employer is also required to keep all records of biological monitoring and medical examination results. These records must include the names of the employees, the physician's written opinion, and a copy of the results of the examination. Medical records must be preserved and maintained for the duration of employment plus 30 years. However, if the employee's duration of employment is less than one year, the employer need not retain that employee's medical records beyond the period of employment if they are provided to the employee upon termination of employment.

Recordkeeping is also required if you are temporarily removed from your job under the medical removal protection program. This record must include your name and social security number, the date of your removal and return, how the removal was or is being accomplished, and whether or not the reason for the removal was an elevated blood lead level. Your employer is required to keep each medical removal record only for as long as the duration of an employee's employment.

The standard requires that if you request to see or copy environmental monitoring, blood lead level monitoring, or medical removal records, they must be made available to you or to a representative that you authorize. Your union also has access to these records. Medical records other than BLL's must also be provided upon request to you, to your physician or to any other person whom you may specifically designate. Your union does not have access to your personal medical records unless you authorize their access.

XIII. Observation of Monitoring-Paragraph (O)

When air monitoring for lead is performed at your workplace as required by this standard, your employer must allow you or someone you designate to act as an observer of the monitoring. Observers are entitled to an explanation of the measurement procedure, and to record the results obtained. Since results will not normally be available at the time of the monitoring, observers are entitled to record or receive the results of the monitoring when returned by the laboratory. Your employer is required to provide the observer with any personal protective devices required to be worn by employees working in the area that is being monitored. The employer must require the observer to wear all such equipment and to comply with all other applicable safety and health procedures.

XIV. Effective Date-Paragraph (P)

The standard's effective date is June 3, 1993. Employer obligations under the standard begin as of that date with full implementation of engineering controls as soon as possible but no later than within 4 months, and all other provisions completed as soon as possible, but no later than within 2 months from the effective date.

XV. For Additional Information

A. A copy of the interim standard for lead in construction can be obtained free of charge by calling or writing the OSHA Office of Publications, room N-3101, United States Department of Labor, Washington, DC 20210: Telephone (202) 219-4667.

B. Additional information about the standard, its enforcement, and your employer's compliance can be obtained from the nearest OSHA Area Office listed in your telephone directory under United States Government/Department of Labor.